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10/505,214	10/26/2004	Martin Vigoureux	Q82801	2390

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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/505,214	VIGOUREUX ET AL.
	Examiner	Art Unit	
	MELANIE JAGANNATHAN	2419	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>23 February 2009</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1 and 4-19</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1 and 4-19</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

- Examiner has considered Amendment after Non-Final mailed 2/23/2009.

- Claims 1, 4-19 are pending.

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by
> another filed in the United States before the invention by the applicant for patent or (2) a patent
> granted on an application for patent by another filed in the United States before the invention by the
> applicant for patent, except that an international application filed under the treaty defined in section
> 351(a) shall have the effects for purposes of this subsection of an application filed in the United States
> only if the international application designated the United States and was published under Article 21(2)
> of such treaty in the English language.

2.   Claims 1, 5-10, 12-14, 16, 18-19 are rejected under 35 U.S.C. 102(e) as being

anticipated by Doshi et al. US 6,205,117.

Regarding claims 1, 5-6, the claimed method of determining a spectral route in

an optical telecommunications network between a starting node and a destination node

of the network comprising using a conventional routing method to determine at least

one candidate spatial route connecting the starting node to the destination node via

network nodes disposed intermediate between the starting and destination nodes is

disclosed by Doshi's precomputation algorithm implemented by the nodes of an all-

optical network, the precomputation of restoration paths performed at the source or

destination nodes of optical network. The path comprises source, destination and

intermediate nodes connected by optical fibers at varying wavelengths. See Figures 4

and 5 and column 5, lines 63-67, column 6, lines 1-5.   The claimed candidate spatial

route consisting of a sequence of spatial route segments, each segment connecting two

nodes of the network directly and being adapted to support a plurality of wavelengths

each wavelength constituting a spectral route segment is disclosed by the

precomputation algorithm is for wavelength routing on optical links in the network.

The claimed sending a route set-up request message from the starting node to

the destination node via the candidate spatial route, collecting values of parameters

characterizing the spectral route segments, the values include values of optical

transparency parameters, in the message as the message traverses the candidate

spatial route is disclosed by Doshi's precomputation algorithm implemented by the

nodes of an all-optical network, the precomputation of restoration paths performed at

the source or destination nodes of optical network. The path comprises source,

destination and intermediate nodes connected by optical fibers at varying wavelengths.

See Figures 4 and 5 and column 5, lines 63-67, column 6, lines 1-5. As part of path

search, the source node uses its locally stored network topology to send capacity

requests to nodes in one or more end-to-end paths. The requests list the nodes on the

corresponding proposed end-to-end path. See column 17, lines 42-49. Each

intermediate node reserves available spare capacity in accordance with the request

which included demand and failure information and the intermediate nodes add its link

status (current demands) to the message forwarded to the next node in the path search.

See column 17, lines 49-53.

The claimed receiving the message with the collected parameters values in the destination node and using an optimization method to process the collected parameters values in the destination node upon receipt of the message to select a spectral route and the spatial route that supports the selected spectral route by selecting the wavelength to be used, or the wavelengths to be used successively, to spectrally connect the starting node to the destination node is disclosed by if destination has received multiple capacity requests from source node such that are multiple candidate end-to-end paths, the destination node selects the candidate path with least number of bottleneck links. See column 18, lines 35-43. The destination node then sends messages requesting release of the capacity on the remaining candidate paths and informs the source node of the selected path. See column 18, lines 35-43. The nodes reflects this message back to the source node.

Regarding claim 7, the claimed receiving a route set-up request message on a predetermined spatial route passing through the node, adding to the content of the message parameter values concerning spatial routes supported by the spatial route segment immediately one of upstream and downstream of the node on the spatial route, together with parameter values concerning the interfaces of the nodes and forwarding the modified message to another node on the spatial route immediately downstream of node and designated by routing information contained in message is disclosed by the precomputation algorithm is for wavelength routing on optical links in the network and each intermediate node reserves available spare capacity in accordance with the request which included demand and failure information and the intermediate nodes add

its link status (current demands) to the message forwarded to the next node in the path

search. See column 17, lines 49-53. The destination node sends information regarding

bottleneck links and contending demands for a candidate end-to-end restoration path to

the source node by appending this information to the message reflected back to the

source node. See column 18, lines 1-5.

Regarding claim 8, the claimed receiving the message with the collected

parameters values in a node and using an optimization method to process the collected

parameters values in the node upon receipt of the message to select a spectral route

and the spatial route that supports the selected spectral route by selecting the

wavelength to be used, or the wavelengths to be used successively, to spectrally

connect the starting node to the destination node is disclosed by if destination has

received multiple capacity requests from source node such that are multiple candidate

end-to-end paths, the destination node selects the candidate path with least number of

bottleneck links. See column 18, lines 35-43. The destination node then sends

messages requesting release of the capacity on the remaining candidate paths and

informs the source node of the selected path. See column 18, lines 35-43. The nodes

reflects this message back to the source node.

Regarding claims 9, 12, 13, the claimed determining sets of wavelengths

available along spatial route segments wherein the values of collected parameters

include identifications of available wavelengths is disclosed by the precomputation of

primary and restoration paths may be performed at the source or destination nodes of a

demand in an optical network in which links are constrained in terms of the particular

optical signal wavelengths which may be carried thereon and each intermediate node reserves available spare capacity in accordance with the request which included demand and failure information and the intermediate nodes add its link status (current demands) to the message forwarded to the next node in the path search. See column 17, lines 49-53 and Figures 4 and 5.

Regarding claims 10, 14 and 18, the claimed selecting spectral route as a transparent route which uses the same wavelength from starting node to destination node and lacks optical to electrical to optical conversion is disclosed by Figure 4 which discloses same wavelength λ_1 for restoration path as the primary path and same wavelength between the nodes.

Regarding claim 16, the claimed wherein using the optimization method comprises:

processing the values of the optical transparency parameters, collected in the received message (*Doshi's precomputation algorithm implemented by the nodes of an all-optical network, the precomputation of restoration paths performed at the source or destination nodes of optical network. The path comprises source, destination and intermediate nodes connected by optical fibers at varying wavelengths. See Figures 4 and 5 and column 5, lines 63-67, column 6, lines 1-5. As part of path search, the source node uses its locally stored network topology to send capacity requests to nodes in one or more end-to-end paths. The requests list the nodes on the corresponding proposed end-to-end path. See column 17, lines 42-49. Each intermediate node reserves available spare capacity in accordance with the request which included*

demand and failure information and the intermediate nodes add its link status (current

demands) to the message forwarded to the next node in the path search, the

destination sends the message back to the source. See column 17, lines 49-53);

minimizing a cost function based on the processed values of the optical

transparency parameters and determining a shortest spectral route including an

optically transparent path from the source node to the destination node (*Doshi uses*

shortest path search using the capacity information from request exchanges, column

13, lines 12-16);

Regarding claim 19, the claimed wherein using the optimization method

comprises:

processing the values of the optical transparency parameters, collected in the

received message;

determining a presence of an optically transparent path from the source node to

the destination node; and

one of:

informing the source node of the determined optically transparent path (*Doshi's*

precomputation algorithm implemented by the nodes of an all-optical network, the

precomputation of restoration paths performed at the source or destination nodes of

optical network. The path comprises source, destination and intermediate nodes

connected by optical fibers at varying wavelengths. See Figures 4 and 5 and column 5,

lines 63-67, column 6, lines 1-5. As part of path search, the source node uses its locally

stored network topology to send capacity requests to nodes in one or more end-to-end

paths. The requests list the nodes on the corresponding proposed end-to-end path.

See column 17, lines 42-49. Each intermediate node reserves available spare capacity

in accordance with the request which included demand and failure information and the

intermediate nodes add its link status (current demands) to the message forwarded to

the next node in the path search, the destination sends the message back to the

source. See column 17, lines 49-53),

and

determining an optimal path between the source node and the destination node,

which optimal path includes the least possible points of non-transparency and informing

the source node of the determined optimal path

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 4, 11, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Doshi et al. in view of Chang-Hasnain et al. US 5,541,756.

Regarding claims 4, 11 and 15, the claimed selecting the spectral route as a

combination of sub-paths wherein each sub-path uses the same wavelength from one

node to another node is disclosed by Figure 5 which discloses local wavelength

transformations at each node, such that the path from the access node A to the egress

node D need not be at a single wavelength.

However, Doshi does not explicitly disclose the parameters taking account

transparency constraints and transparency where there is a lack of electrical/optical

conversion. Chang-Hasnain discloses a switch capable of routing optical data without

subjecting it to opto-electronic conversion. See column 2, lines 31-40. At the time the

invention was made it would have been obvious to one of ordinary skill in the art to

modify Doshi with the switch of Chang-Hasnain, the motivation being for better speed

and network efficiency. See column 1, lines 23-33.

5.   Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Doshi in

view of Hauser et al. US 7,263,100.

Doshi discloses restoration algorithms in case of failures in optical networks.

However, Doshi fails to disclose the use of Dijkstra algorithm to find cost minimized

route. Hauser discloses restoration paths and the use of Dijkstra algorithm. See

column 8, lines 6-32. At the time the invention was made it would have been obvious to

modify Doshi's precomputation restoration to use Dijkstra. One of ordinary skill in the

art would be motivated to do so for least cost and shortest path determination.

Response to Arguments

6.   Applicant's arguments regarding claims 1-15 have been fully considered but they

are not persuasive.

Applicant's arguments with respect to claims 16-19 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues Doshi relates to capacity and not transparency parameters as amended to the claims.

Examiner respectfully disagrees. Doshi recites the same wavelength be used for the primary and restoration path and thus it follows as the nodes make the capacity check to see if they can accommodate the capacity request, the certain wavelength is a parameter that is involved along with the collected capacity information as the message travels end-to-end. Additionally, the wavelength directly influences the capacity of a fiber. In light of the claim language, the rejection is proper.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MELANIE JAGANNATHAN whose telephone number is (571)272-3163. The examiner can normally be reached on Monday-Friday from 8:00 a.m.-5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Ryman can be reached on 571-272-3152. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Melanie Jagannathan/
Primary Examiner, Art Unit 2419